

USATE NK, Vol 1

USSR/Analytical Chemistry - Analysis of Inorganic Substances, G-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1219

Author: Usatenko, Yu. T., and Witkina, M. A.

Institution: Academy of Sciences USSR

Title: Determination of Calcium in Limestone by Coulombometric Titration
Using an Indicator

Original

Periodical: Tr. komis. po analit. khimii AN SSSR, 1956, Vol 7, No 10, 155-161

Abstract: For the coulombometric determination of Cd in the presence of Cu(II) as an indicator [sic], a 0.05-0.06 gms sample of limestone is wetted with water; after dissolving the sample by boiling in a small amount of HCl, 10 ml of 0.1 M NH_4Cl are added. The solution is diluted to 20 ml and heated until CO_2 evolution is completed. After cooling, an equal volume of alcohol is added to the solution together with 0.2-0.3 ml 0.1 M FeCl_3 (slightly acidified with HCl); after addition of one drop of methyl red the solution is neutralized with NH_4OH (1:1) until the color changes from pink to pale yellow when one to 2 drops

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USA/ENNO; 10. F.

✓ 1337. Decomposition of chrome iron ore and
photocolorimetric determination of chromium with
EDTA. Yu. I. Usatenko and E. A. Klimovich

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0005

(P. E. Dzerzhinskii Leningrad Chem. Technol. Inst.). Zhurnal. Lezh. 1936, 21 (3), 279-282. The finely divided sample (0.2 g) of chrome iron ore is heated at 1100° C for 10 to 15 min. with 6-8 g of soda lime and 0.4 g of Na_2CO_3 , or 0.4 g of MgO and 0.4 g of Na_2CO_3 , then moistened with water and dissolved at 70° C in 25 ml of dil. HCl (1 + 1) or, if MgO has been used, in 40 ml of dil. H_2SO_4 (1 + 4). The soln. is diluted to 100 ml in a calibrated flask, 10 ml are treated at the boiling point with 0.2 to 0.3 g of Na_2SO_3 to reduce Cr^{VI} and Fe^{III} , the reduced soln. is mixed with 20 to 25 ml of 0.1 M EDTA (disodium salt), then heated to boiling point and neutralized with conc. aq. NH_3 at 40° to 60° C, giving a bluish-violet colour. The soln. is boiled for 1 min., then cooled and transferred to a 100-ml calibrated flask. The soln. is diluted to 100 ml with a mixture of 24 ml of 2 N Na acetate and 80 ml of acetic acid, and examined in a photocolorimeter with a green filter.

Chem

G. S. Smith

15-00000, 1/6-7
 3597. Determination of titanium in ferrotitanium by the method of amperometric titration with cupferron. Yu. A. Usatenko, G. E. Babkushina, E. I. Gorbunov, G. Ya. Gorn and E. N. Karpusha

(*Ukrainian Chemical Journal*, 1957, 3, 200-201, 1958, 2, 523-524) -- The sample (0.2 g) of ferrotitanium is dissolved in 20 ml of mixed acids, prepared from 100 ml of dil. H_2SO_4 (1 + 1), 150 ml of conc. HNO_3 and 300 ml of conc. HCl . The soln is evaporated to fuming to remove HNO_3 completely, and 50 ml of dil. HCl (1 + 5) are added to the cooled residue which is then heated to dissolve the salts. The soln is filtered if necessary and any insol. matter is ignited, treated with HF and H_2SO_4 , then fused with $K_2S_2O_8$, and the soln. of the melt is added to the main soln. The soln. is diluted to 250 ml in a calibrated flask and a 5-ml aliquot is mixed with 25 ml of water and neutralized to methyl violet with aq. NH_3 . Five ml of 1 per cent EDTA (disodium salt) soln. and 5 g of $NaCl$ are added, a rotating platinum electrode and a connection to a S.C.E. are introduced, and the soln. is titrated at 0.8 V with cupferron soln. (*cf. Anal. Abstr.*, 1958, 2, 1391) for Ti. G. S. SMITH

LM
 LIT:

USATENKO, YU. I.

Category: USSR / Analytical Chemistry - Analysis of inorganic substances.

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Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30996

Author : Usatenko Yu. I., Klimkovich Ye. A.

Inst : not given

Title : Direct Determination of Chromium in Chromite by Means of Sintering

Orig Pub: Ukr. khim. zh., 1956, 22, No 5, 670-672

Abstract: A rapid method is proposed for decomposing chromite (I) by means of a short duration sintering with small amounts of a mixture of soda lime, or MgO , and Na_2CO_3 , and subsequent determination of the $Cr(6+)$ that is formed by titration with a solution of $FeSO_4$ in the presence of phenyl-anthranilic acid. 0.2 g finely ground I are well mixed with 0.6 g soda lime, which has been calcined at $600-700^\circ$, and 0.4 g Na_2CO_3 (or with 0.4 g MgO and 0.4 g Na_2CO_3). The mixture is placed into a Pt-crucible, the bottom of which has been covered with a thin layer of CaO or MgO .

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Usatenko, Yu. I.

USSR/Analytical Chemistry - Analysis of Inorganic Substances

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Abs Jour : Ref Zhur - Khimiya, No 4, 1957, 12056

Author : Usatenko Yu. I., Gureyeva L.I.

Title : Separation of Aluminum and Zirconium by the Method of Ion-Exchange

Orig Pub : Zavod. laboratoriya, 1956, 22, No 7, 781-783

Abstract : The method is based upon the fact that Zr is absorbed by the cathionite from more acidic solutions than Al. Greatest absorption power is exhibited by the cathionite KU-1 (maximum acidity 1.5 N), next best is cathionite SBSR (1.25 N), least absorption is shown by Wofatit R (0.75 N). Greatest difference in acidity for the absorption of Zr and Al is observed in the case of sulfonated coal, cathionite Ku-1 and MOF-1. Al^{3+} ions are not absorbed by sulfonated coal from a 1 N, and by cathionite KU-1 from a 1.5 N solution of the acid. Best results are obtained on using sulfonated coal. The mixture of solutions of Al and Zr is passed through a column containing the cathionite,

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USSR/Analytical Chemistry - Analysis of Inorganic Substances

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Abs Jour : Ref Zhur - Khimiya, No 4, 1957, 12056

at a rate of 5 ml/minute. Al is determined in the filtrate.
Zr is leached out of the column with hydrochloric acid (1:4).

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USSR / Analytical Chemistry.
Analysis of Inorganic Substances.

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Abs Jour: Ref. Zhur - Khimiya No. 2, 1958, 4298

is heated for 5 min. at 70°C. The solution is cooled with subsequent addition of 10 ml. of 0.1 M NH_4Cl solution, and neutralized with 0.1 N NaOH solution (plus 2-3 drops in excess) and then CH_3COCH is added to a light pink coloration of the methyl red indicator. Into this solution a rotating Pt-microelectrode is immersed, also the switch from a mercury-iodide half-cell, and the agitator is turned on and exactly 1ml. of copper salt solution is added; whereby the arrow of the galvanometer is sharply deflected and even might go off scale. Titration is done with $(\text{NH}_4)_2\text{C}_2\text{O}_4$ solution, first carefully and then more rapidly. Near the equivalent point the diffusion current caused by Cu^{2+} ions, disappears. The titration curve is plotted, the equivalent

Card 2/3

USATENKO, Yu.I.
USATENKO, Yu.I.; VITKINA, M.A.

Amperometric titration with oxalates. Ukr. khim. zhur. 27 no.6:
788-791 '57. (MIRA 11:1)

1. Dnepropetrovskiy khimiko-tekhnologicheskoy institut im. F.E.
Dzerzhinskogo, Kafedra analiticheskoy khimii.
(Electrochemical analysis) (Oxalates)

AUTHORS: Usatenko, Yu.I., Bekleshova, G.Ye. 32-12-2/71

TITLE: Determination of Zirconium by Amperometric Titration by Application of Cupferron (Opredeleniye tsirkoniya amperometricheskim titrovaniyem s primeneniym kupferona).

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 12, pp. 1406-1407 (USSR)

ABSTRACT: A similar method was suggested already in Zavodskaya Laboratoriya, 1957, Vol. 21, Nr 7, pp. 779-779, i.e. with respect to the application of titrated cupferron solutions when determining elements which form compounds or precipitations undissolvable with cupferron. Here it is specially pointed out that such applications have been undertaken already in previous times by Olson and Elving (1954), but that this method in practice proved to be too complicated. The use of a zirconium dioxide solution for the determination of zirconium is suggested by the present paper, which was obtained by blending of this substance with scda at 1200° and consecutive de-leaching by hydrochloric acid. For carrying out the experiment the application of the already previously described amperometric device and the method (as for the determination of titanium) is recommended. In this case the addition of sodium chloride is favorable for the process of titration. The results are shown in a table. On the basis of the

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Determination of Zirconium by Amperometric
Titration by Application of Cupferron

32-12-2/71

20 experiments carried out simultaneously the average possibility of errors was stated to be 0.55%. In this case the content of aluminum, chromium, manganese, zinc, nickel, and some other elements contained in the solution did not prove to be disturbing. Titanium, pentavalent vanadium, oxidation substances, which are able to oxidize cupferron, or the regenerators which are able to produce anode diffusion current, proved to be disturbing. An example of the analysis experiment is given here. There are 4 references, 2 of which are Slavic.

ASSOCIATION: Dnepropetrovsk Chemical-Technological Institute imeni F.Z. Dzerzhinskiy (Dnepropetrovskiy khimiko-tekhnologicheskii institut im. F.Z.Dzerzhinskogo).

AVAILABLE: Library of Congress

Card 2/2 1. Zirconium-Determination 2. Amperometric titration
 3. Cupferron

5(4)

AUTHORS: Usatenko, Yu. I., Tuluyeva, F. M.

SOV/155-98-3-10/30

TITLE: Amperometric Analysis by Using Sodium Diethyl-Dithiocarbamate (Amperometricheskiy analiz s primeneniym dietilditio-karbamata natriya) Communication I. Determination of Copper (Soobshcheniye I. Opredeleniye medi)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 56 - 60 (USSR)

ABSTRACT: The sodium compound under review forms with copper an internal complex compound which, according to the size of the particles, colors the solution gold-yellow or yellow-brown, or is precipitated (Ref 1). Numerous methods of copper determination in various materials are based on this phenomenon. Most commonly used are optical methods (Refs 2-9). The disturbing elements are masked with trilon B, citric acid and other complex-forming compounds. The masking agents can be omitted if lead diethyl-dithiocarbamate is used and the copper carbonate is

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Amperometric Analysis by Using Sodium Diethyl-Dithiocarbamate. SOV/155-58-3-10/50
Communication I. Determination of Copper

then removed by organic solvents. Under these conditions copper can be determined also in the presence of Co, Ni, Mn and Fe. The authors are working according to Mukhina's method (Ref 13), but suggest instead of a dropping mercury electrode a simpler rotating platinum electrode. They found that diethyl-dithiocarbamate readily oxidizes on such a microelectrode thus an anodic diffusion current being formed (Fig 1). As can be seen from it, the oxidation takes place in 2 stages, which is proved by 2 waves in the volt-ampere curves of diethyl-dithiocarbamate. According to these curves it is possible to apply a solution titrated with diethyl-dithiocarbamate to the amperometric determination of metals which form insoluble precipitates or solid complex compounds with this compound. Copper is one of them. The determination method was devised with pure salts. The titration curve given as an example (Fig 2) and the results (Table 1) show a fully satisfactory accuracy of the

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Amometric Analysis by Using Sodium Diethyl-Dithiocarbamate. SOV/153-59-3-10/30
Communication I. Determination of Copper

analysis. Copper is usually existing in alloys which contain also Pb, Zn, Fe, Al, Ni, and others. All these metals, with the exception of Al, react with diethyl-dithiocarbamate. They were masked with trilon B (maximum 0.02 M). Thus it was possible to carry out the copper titration even at a considerable excess (Cu:Zn = 1:10; Cu:Ni = 1:12; Cu:Fe = 1:77) of the metals mentioned. In the case of lead, sodium acetate had to be added apart from trilon B, which together are able to bind even a 60-fold lead excess. The same or even a higher efficiency is attained by addition of chlorides; in alloys on a lead basis, however, the addition of trilon B in minute quantities is necessary. Finally, the authors devised an accelerated amometric method of determination for copper in babbits and alloys on an aluminum basis which is described in detail (Tables 2, 3). There are 2 figures, 3 tables, and 15 references, 5 of which are Soviet.

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Amometric Analysis by Using Sodium Diethyl-Dithiocarbamate. SOV/193-58-3-10/30
Communication I. Determination of Copper

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut
(Dnepropetrovsk Institute of Chemical Technology)
Kafedra analiticheskoy khimii (Chair of Analytical
Chemistry)

SUBMITTED: September 30, 1957

Card 4/4

AUTHORS: Usatenko, Yu. I., Vitkina, M. A. SOV/156-58-3-24/52

TITLE: An Amperometric Titration Using Complexon-(III)-Solution (Amperometricheskoye titrovaniye pri pomoshchi rastvora kompleksona III)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 502 - 504 (USSR)

ABSTRACT: The complexon-(III)-solution oxidizes on a rotating microelectrode in alkaline and acid medium. The peaks of the Volt-Ampere wave curve are dependent upon the concentration and the pH value of the solution. By using the complexon-(III)-solution it is possible to carry out amperometric titrations with many elements. Titrations of zinc in aqueous solutions and acetic acid solutions at a pH value of 3 - 4,5 and a potential of 0,9 V were carried out. More accurate results in the titration of cobalt were obtained in weakly alkaline solutions at a potential of 0,5 - 0,6 V. The titration of bismuth is carried out at 0,9 V. The amperometric titration of iron permits the determination of iron in ores and agglomerates by means of complexon-(III)-solutions. In all cases the appearance of the

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An Amperometric Titration Using Complexon-(III)-Solut

SOV/ 156-58-3-24/52

anodic current indicates the end of the titration. There are 3 figures and 4 references, 3 of which are Soviet.

ASSOCIATION:

Kafedra analiticheskoy khimii Dnepropetrovskogo khimiko-tekhnologicheskogo instituta im.F.E.Dzerzhinskogo (Chair of Analytical Chemistry at the Dnepropetrovsk Chemical and Technological Institute imeni F.E.Dzerzhinskiy)

SUBMITTED: January 15, 1958

Card 2/2

SOV/137-59-1-2096

Translation from: Referativnyy zhurnal Metallurgiya, 1959, Nr 1, p 275 (USSR)

AUTHORS: Usatenko, Yu. I., Klimkovich, Ye. A.

TITLE: Sodium Versenate Method for the Photo-colorimetric Determination of Chromium in Chromite (Primeneniye trilonu B dlya fotokolorimetricheskogo opredeleniya khroma v khromistom zheleznyake)

PERIODICAL: Tr. Komiss. po analit. khimii AN SSSR, 1958, Vol 8(11), pp 169-177

ABSTRACT: The reddish-violet coloration of the sodium versenate (I) complex with Cr^{3+} is utilized for the photometric determination of Cr in chromites (C). It is shown that the reaction of Cr^{3+} with I proceeds upon 1 min heating with a 1000% excess of I at pH 4. The molar I-Cr neutralization factor is 150. Ca, Mg, Al, Fe, Cu, and H_2SiO_3 do not impede the reaction. 0.2 g of finely ground C is mixed with 0.6 g soda lime and 0.4 g Na_2CO_3 and sintered at 1100°C for 10-15 min in a Pt crucible, the bottom of which is first covered with CaO or MgO. The cake is transferred into a flask, wetted with water and dissolved in 25 cc HCl (1:1), or, in case it was sintered with MgO, in 40 cc H_2SO_4 (1:4). The solution is placed into a 100-cc flask and diluted

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SOV/137-59-1-2096

Sodium Versenate Method for the Photo-colorimetric Determination of Iron

to the mark. 10 cc of the solution are taken for the reduction of Cr^{6+} to Cr^{3+} & Fe^{3+} to Fe^{2+} , 0.2 - 0.3 g Na sulfite are added, and the whole is boiled for 1 min. 20 cc of 0.1-M solution of I are added and upon heating to 60-80°C it is neutralized with concentrated NH_4OH ; at the end of the reaction the red-violet coloring turns into blue-violet, indicating the formation of the 1 Cr complex. The solution is boiled for one more minute, cooled, transferred into a 100-cc flask, diluted to the mark with a buffer mixture (20 cc 2N CH_3COONa and 80 cc 2N CH_3COOH), mixed, and read on the photocolormeter using a green light filter.

A M

Card 2/2

AUTHORS: Usatenko, Yu. I., Vitkina, M. A. SOV/32-24-9-5/53

TITLE: The Amperometric Determination of Iron With Trilon B in Various Materials (Amperometricheskoye opredeleniye zheleza trilonom B v razlichnykh materialakh)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 9, pp 1058-1059 (USSR)

ABSTRACT: According to literature data (Ref 1), trilon B is oxidized, at a pH = 8, at the Hg dropping electrode, producing an anodic diffusion wave. In the investigations under review, it was found that this oxidation occurs also at the rotating platinum micro-anode. In this process, most marked waves are formed in the voltage curves, the wave height being proportional to the concentration of trilon B. The pH of the solution has a strong influence upon the current strength. At a pH = 1, for instance, the wave height is four times that in neutral solutions. An oxidation of trilon B in the alkaline medium is also possible. Thus determinations are feasible both in acid and in alkaline media, and consequently a trilon solution can be used for anodic amperometric titrations of such metals as form stable complex compounds with trilon. In the paper under review, iron

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The Amperometric Determination of Iron With Trilon B in Various Materials

SOV/32-24-9-5/53

determinations were made by a direct titration with trilon B, without any previous separation of other components. The analytical procedure and a table listing the materials tested and the results obtained are given. There are 1 table and 1 reference.

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut im. F. E. Dzerzhinskogo (Dnepropetrovsk Chemo-Technological Institute imeni F. E. Dzerzhinskiy)

Card 2/2

AUTHORS: Usatenko, Yu. I., Fedash, N. P. SOV/32-24-10-3/70

TITLE: ~~The Decomposition~~ of Casting and Martin Cinders Which Are Difficult to Dissolve According to the Sinter Method
(Razlozheniye trudnorastvorimyykh liteynykh i martenovskikh shlakov metodom spekaniya)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1180-1181 (USSR)

ABSTRACT: It has been found (Refs 1, 5) that only sintered and not melted masses dissolve quickly in acids. In the case of sintering a minimum of flux should be used, because in adding flux components which are difficult to dissolve are being added (Ref 5). In the present paper the results of the investigations mentioned in the title are given. The composition of the cinder is given in tables. It is mentioned that cinders with a greater content of silicic acid and aluminum oxide are more difficult to sinter and to dissolve in the acid. The presence of manganese and chromium in the cinders improves their sintering and the dissolution in the acid. Cinders with a high content of silicic acid and aluminum oxide must be heated to 1000 - 1100° for 10 - 15

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The Decomposition of Casting and Martin Cinders Which Are Difficult to
Dissolve According to the Sinter Method

SOV/32-24-10-3/70

minutes. In the case of manganese- and chromium cinders a heating up to $900 - 1000^{\circ}$ for 5 - 10 minutes is sufficient. A table of results of the analysis of the cinders mentioned in the title is given as well as the results of a common melting. The decomposition of these cinders was carried out by sintering in platinum crucibles and using a small quantity of sodium carbonate. There are 2 tables and 5 references, 5 of which are Soviet.

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut im.
F. E. Dzerzhinskogo (Dnepropetrovsk Institute of Chemical
Technology imeni F. E. Dzerzhinskii)

Card 2/2

5(2), 5(4)
AUTHORS:

Usatenko, Yu. I. Tulyupa, F. M.

SOV/32-24-11-6/37

TITLE:

Lead as an Indicator in the Amperometric Titration of Solutions of Sodium Diethyl-Dithio Carbamate (Svinets kak indikator pri amperometriceskoy titrovaniy rastvora dietilditiokarbamata natriya)

PERIODICAL:

Zavodskaya Laboratoriya, 1958, Vol 24, Nr 11, pp 1327-1331 (USSR)

ABSTRACT:

The resistance of the diethyl-dithio carbamates of heavy metals has been investigated a great deal in recent years. The carbamates have been arranged in series according to the resistance of the complex compounds. There are the series according to Bode and Tusche (Tushe) (Ref 1), according to Wickbold (Vickbold) (Ref 2), and according to Eckert (Eckert) (Ref 3). Sodium diethyl-dithio carbamate (NaDDC) oxidizes at the rotating Pt microelectrode and exhibits two horizontal sections in the volt-ampere curves, at 0.4 and 0.8 volt. Metals which form insoluble compounds with NaDDC can be titrated amperometrically, as was observed by Z. S. Mukhina (Ref 15). In the titration of lead (at 0.8 volt) it was noticed that the PbDDC

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SOV/32-24-11-6/37

Lead as an Indicator in the Amperometric Titration of Solutions of Sodium Diethyl-Dithio Carbamate

precipitates out somewhat later. This was attributed to the formation of PbR^+ ions, which produce sharp jumps in the volt-ampere curves whose heights are proportional to the concentration of the reagent. The reaction constant of the reaction $2 PbR^+ \rightleftharpoons PbR_2 + Pb^{2+}$ is constant over the broad interval $2 \cdot 10^{-4}$ to $4 \cdot 10^{-2}$ g lead ion/l, and amounts to $9.2 \cdot 10^5$. The PbDDC ions form before the dithio carbamates of iron, manganese, nickel, zinc, cadmium, and other ions, but after the formation of the carbamates of copper and mercury. As a result the lead salt can be used as an indicator in the amperometric titration of mercury and copper. A method of determination and the optimal conditions for it are set forth. A determination of silver using this method was not successful. S. Ye. Kreymer and L. P. Butylkin (Ref 12) showed that Ni and Co do not displace lead from the carbamate. The application of the described method to the analysis of steel, tin and lead alloys, copper-zinc-sulfide ores, and mercury ores with 0.3-0.7% Hg gave satisfactory results. There are 1 figure, 4 tables, and 15 references, 4 of which are Soviet.

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SOV/32-24-11-6/37
Lead as an Indicator in the Amperometric Titration of Solutions of Sodium
Diethyl-Dithio Carbamate

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut imeni F.
E. Dzerzhinskogo (Dnepropetrovsk Chemical-Technological
Institute imeni F. E. Dzerzhinskiy)

Card 3/3

USATENKO, Yu. I.; KLIMKOVICH, Ye. A..

Decomposition of chromium magnesites by sintering. Zav. lab.
no. 11:1295-1296 '59. (MIRA 13:4)

1. Dneptopetrovskiy khimiko-tekhnologicheskoy institut im. F.E.
Dzerzhinskogo.
(Chromium ores --Analysis)

5(2)

AUTHORS:

Usatenko, Yu.I., Tulyupa, F.M.

05862

SOV/78-4-11-15/50

TITLE:

On the Reaction of the Cations of Lead, Zinc, Cadmium and Mercury With Sodium Diethyl Dithiocarbamate

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11, pp 2495-2499 (USSR)

ABSTRACT:

By reaction with sodium diethyl dithiocarbamate, Pb-, Zn-, Cd-, Hg cations and others from unsoluble compounds of the composition MeR_2 ($R = (C_2H_5)_2NC(S)_2^-$). When investigating the electrochemical properties of NaR it was found to be oxidized in two stages on a rotating platinum microanode. Herefrom the authors concluded that amperometric titration of metals with the help of NaR was possible. In lead titration the ion PbR^+ is, in fact, produced first. It is soluble in water, and disproportionates according to the equation $2PbR^+ \rightleftharpoons PbR_2 + Pb^{2+}$ under the removal of a precipitate. The disproportionation constant amounted to $9.2 \cdot 10^5$. Cd (constant: $2.4 \cdot 10^6$) and Zn (constant: $2.0 \cdot 10^8$) showed similar

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05862

On the Reaction of the Cations of Lead, Zinc,
Cadmium and Mercury With Sodium Diethyl Dithiocarbamate

SOV/78-4-11-15/50

behavior. The disproportionation constant of bivalent mercury ions was, however, equal to zero, and the precipitate was formed according to the reaction $\text{Hg}^{2+} + \text{R}^- \rightarrow \text{HgR}^+$; $\text{HgR}^+ + \text{R}^- \rightarrow \text{HgR}_2$, whereas in the presence of chlorides whose concentration was sufficient for sublimate formation, the reaction proceeded in one stage: $\text{Hg}^{2+} + 2\text{R}^- \rightarrow \text{HgR}_2$. There was a distinct parallelism found between the resultant disproportionation constants and the solubility product of the corresponding sulphides. There are 1 figure and 6 tables.

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut im.
F.E. Dzerzhinskogo (Dnepropetrovsk Institute of Chemical
Technology imeni F.E. Dzerzhinskiy)

SUBMITTED: July 11, 1958

Card 2/2

5(4)

AUTHORS: Usatenko, Yu. I., Tulyupa, F. M.

SOV/32-25-3-7/62

TITLE: Determination of Copper in Steels According to the Method of Ammetric Titration With Sodium Diethyldithiocarbamate
(Opredeleniye medi v stalyakh metodom amperometricheskogo titrovaniya dietilditiokarbamatom natriya)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 280 - 283 (USSR)

ABSTRACT: The determination of copper by use of sodium diethyldithiocarbamate (I) is based on the formation of a brown compound which is extracted by means of organic solvents. It was suggested to use a titrated (I)-solution in ammetric Zn and Cu determinations in aluminum alloys as well as in vanadium and nickel determinations in steels and alloys (Ref 3). The investigations showed that (I) oxidizes on the rotating platinum microanode with two polarographic waves forming (0.4 and 0.8 v). On this basis copper may be titrated according to the anodic wave of (I). The experiments showed that all accompanying materials of copper (Pb, Zn, Fe, Al, Ni, etc) except Al react with (I). Since Trilon B can be applied only until a concentration of

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Determination of Copper in Steels According to the Method SOV/32-25-3-7/62
of Ammetric Titration With Sodium Diethyldithiocarbamate

0.02 mol lead nitrate was used as an indicator and thus the disturbing effect of the above-mentioned metals was eliminated. The influence exercised by manganese on chromium was eliminated by tartaric acid while tungsten must be oxidized in tungstic acid. The described ammetric determination of copper was tested on the standard steel samples Nr 174, 197, 155a, 128, 53b, 124a, and 134 (Table). The titer of (I) was fixed on steel Nr 174 (0.49% Cu). The course of the analysis is described. There are 1 figure, 1 table, and 3 references, 1 of which is Soviet.

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut im.
F. E. Dzerzhinskogo (Dnepropetrovsk Institute of Chemical
Technology imeni F. E. Dzerzhinskiy)

Card 2/2

SOV/32-25-4-5/71

5(2)

AUTHORS:

Usatenko, Yu. I., Tulyupa, F. M.

TITLE:

Separation of Copper and Mercury by the Ion Exchange Chromatography (Razdeleniye medi i rtuti ionoobmennoy khromatografiyey)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 400-402 (USSR)

ABSTRACT:

According to observations made up to now it can be assumed that mercury is capable of being absorbed from more-acid solutions than copper. The maximum acidity was determined at which a full absorption of Cu and Hg occurs on wofatite R, MSF-1, KU-1, SPSR, KU-1G, SBO, and sulphonated coal. Experiments which took place by a treatment of the cation exchangers with hydrochloric acid solutions remained without success. The application of 0.1 to 6.0 n sulphuric acid led to positive results (Table 1). The greatest difference in the maximum acidity between the full absorption of Hg^{2+} and Cu^{2+} could be observed in sulphonated coal (3.75 n), SBO (2.75 n), KU-1G (2.5 n), and SPSR (0.9 n). Curves for the Hg-extraction with diluted hydrochloric acid from the cation exchangers are given (Figs 1,2), and it is found that the best separation of the Cu from Hg can be attained on KU-1G with 1.5 n H_2SO_4 . The column with KU-1G is filled with 1.5 n

Card 1/2

SOV/32-25-4-5/71

Separation of Copper and Mercury by the Ion Exchange Chromatography

H_2SO_4 , and the solution to be examined is let through; the cation exchanger is rewashed with H_2SO_4 to remove the last remainders of copper. The mercury is then extracted with a saturated ammonium-chloride solution and hydrochloric-acid solution. Analytic results of an Hg-determination carried out in this way are indicated (Table 2). The separation cannot take place in the presence of halogen ions. There are 2 figures, 2 tables, and ' Soviet reference.

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskii institut im. F. E. Dzerzhinskogo (Dnepropetrovsk Chemical-technological Institute imeni F. E. Dzerzhinskiy)

Card 2/2

USATENKO, Yu.I.; SHUMSKAYA, A.I.

Amperometric titration of silver and mercury by a thiourea
solution. Zav.lab. 26 no.2:149-152 '60. (MIRA 13:5)

1. Dnepropetrovskiy khimikotekhnologicheskii institut imeni
F.E. Dzerzhinskogo.
(Silver--Analysis) (Mercury--Analysis)

USATENKO, Yu.I.; KLIMKOVICH, Ye.A.

Reaction of the constituents of chromite during its sintering
with various substances. Ukr. khim. zhur. 26 no.2:254-259
'60. (MIRA 13:9)

1. Dnepropetrovskiy khimiko-tekhnologicheskoy institut im.
F.E. Dzerzhinskogo, kafedra analiticheskoy khimii.
(Chromite)

USATENKO, Yu.I., VITKINA, M.A.

Amperometric determination of bismuth with trilon B in low-melting alloys. Zav.lab. 26 no.5:542-543 '60. (MIRA 13:7)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im. F.E. Dzerzhinskogo.
(Bismuth--Analysis)

USATENKO, Yu.I., TULYUPA, F.M.

Extraction and amperometric titration of zinc and cadmium
by means of sodium diethyldithiocarbamate. Zav.lab. 26
no.7:783-786 '60. (MIRA 13:7)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut im.
F.E. Dzerzhinskogo.
(Zinc--Analysis) (Cadmium--Analysis) (Carbamic acid)

USATENKO, Yu.I, doktor khimicheskikh nauk

"Technical analysis in the metallurgical and by-product coke industries" by B.A. Generozov, Reviewed by Yu.I. Usatenko.
Zav. lab. 26 no. 8:1037-1038 '60. (MIRA 13:10)

(Metallurgy--Laboratory manuals)
(Coke industry--By-products) (Generozov, B.A.)

USATENKO, Yu.I.; UVAROVA, K.A.

Amperometric titration with a solution of sodium piperidinedithiocarbamate. Zav.lab 26 no.10:1098-1101 '60. (MIRA 13:10)

1. Dnepropetrovskiy khimiko-tehnologicheskoy institut im. F.E. Dzerzhinskogo.

(Carbamic acid)

(Metals—Analysis)

USATENKO, Yu.I.; KLIMKOVICH, Ye.A.; LOSHKAREV, Yu.M.

Amperometric titration of mercury with unithiol solution.
Ukr.khim.zhur. 27 no.6:823-827 '61. (MIRA 14:11)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.
(Mercury--Analysis)

USATENKO, Yu.I.; ARISHKEVICH, A.M. [Arishkevych, O.M.]

Dimercaptopyrrols, new analytical reagents. Dcp. AN USSR
no.4:504-509 '62. (MIRA 15:5)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.
Predstavleno akademikom AN USSR A.K.Babko.
(Chemical tests and reagents)

ARIYSHNEVICH, A.M.; UNATNIK, Yu.I.

Dimercaptothiopyrones, new analytical reagents. Report no.1:
Synthesis of dimercaptothiopyrones. Trudy IKhT no.16:43-46
*62 (MIRA 17:8)

Dimercaptothiopyrones, new analytical reagents. Report no.2:
Amperometric titration of copper. Ibid. 17:51

SUKHOMUCHIK NA, A.S.; USATIN, Yu.F.

Amperometric titration of mercury with 2,4-dichlorobiphenyl. Trudy
DKHTI no.16:113-122 '62 (MIRA 17:8)

SU-KUNOVICH, V.I.; USATENIK, Ya.I.

Amperometric titration with *p*-mercaptoquinoline solution. Trudy
DKHTI no.16:129-131 '62 (MIRA 17:8)

USATENKO, Yu. I.; UVAROVA, K. A.

Using dithiocarbamates in amperometric analysis and investigating their analytical properties. Ukr. khim. zhur. 28 no.3: 383-388 '62. (MIRA 15:10)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im. F. E. Dzerzhinskogo.

(Conductometric analysis) (Carbamic acid)

USATENKO, Yu.I., doktor khim.nauk, prof.; SHVAYGER, M.I.; POPOV, V.A.;
AVDEYENKO, V.P.

"Analysis of metallurgical production materials. Determination of
microimpurities" by P.IA.IAkovlev, A.A.Fedorov, N.V.Buianov. Reviewed
by IU.I.Usatenko and others. Zav.lab. 28 no.7:894-895 '62.
(MIRA 15:6)

1. Magnitogorskiy metallurgicheskiy kombinat (for Shvayger, Popov,
Avdeyenko).

(Metallurgical analysis) (IAkovlev, P.IA.)
(Fedorov, A.A.) (Buianov, N.V.)

ARISHKEVICH, A.M.; USATENKO, Yn.I.

Dimercaptothiopyrones, new analytical reagents. Trudy DKHTI no.16:27-
34 '63. (MIRA 17:2)

SUKHORUCHKINA, A.S.; USATENKO, Yu.I.

Amperometric titration of palladium with 2,4-dithiobiuret. Trudy
DKHTI no.16:35-42 '63. (MIRA 17:2)

USATENKO, Yu.I.; SUKHORUCHKINA, A.S.

2,4-Dithiobiuret and 1-phenyl-2,4-dithiobiuret, new reagents
for amperometric titration. Report No.1: Acid and polarographic
characteristics of dithiobiurets. Zhur. anal. khim. 18 no.11:
1295-1299 N '63. (MIRA 17:1)

1. Dnepropetrovskiy khimiko-tekhnologicheskoy institut imeni
F.E. Dzerzhinskogo.

USATENKO, Yu.I.; SUKHORUCHKINA, A.S.

2,4-Dithiobiuret and 1-phenyl-2,4-dithiobiuret, new reagents for
amperometric titration. Report No.2: Titration of mercury, silver,
and gold ions. Zhur. anal.khim. 18 no.12:1447-1451 D '63.

(MIRA 17:4)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut imeni
Dzerzhinskogo.

USATENKO, Yu. I.; UVAROVA, K. A.

Use of bismuth as an amperometric indicator in the titration
of palladium with sodium hexamethylenedithiocarbamate. Ukr.
khim. zhur. 29 no. 2:193-197 '63. (MIRA 16:6)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.
(Palladium Analysis)
(Conductometric analysis)
(Bismuth)

USATENKO, Yu.I.; ZAMORSKAYA, T.V.

Amperometric titration of palladium by thionalide.

Zav.lab. 29 no.3:291-293 '63.

(MIRA 16:2)

1. Dnepropetrovskiy khimiko-tekhnologicheskoy institut
imeni F.E. Dze-zhinskogo.

(Palladium--Analysis)

(Conductometric analysis)

(Acetamide)

USATENKO, Yu.I.; TULYUPA, F.M.

Amperometric titration of mercury and bismuth by a solution of potassium ethyl xanthate. Ukr. khim. zhur. 29 no.7:747-751 '63.
(MIRA 16:8)

1. Dnepropetrovskiy khimiko-tekhnologicheskoy institut im. Dzerzhinskogo.

(Mercury--Analysis) (Bismuth--Analysis)
(Conductometric analysis)

USATENKO, Yu.I.; ZAMORSKAYA, T.V.

Solubility of thionalide and metal thionalidates. Ukr. khim. zhur.
29 no.9:925-928 '63. (MIRA 17:4)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im.
F.E.Dzerzhinskogo.

USATENKO, Yu.I.; SUPRUNOVICH, V.I.

Differential amperometric titration of iridium, palladium,
iron and copper by an 8-mercaptoquinoline solution. Dokl.
AN SSSR 153 no.3:622-625 N '63. (MIRA 17:1)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im.
F.E. Dzerzhinskogo. Predstavleno akademikom I.V. Tananayevym.

USATENKO, Yu.I.; KUTSENKO, L.M.

Amperometric titration of thallium with dithiocarbamates. Zhur.
anal. khim. 19 no.11:1315-1321 '64.

(MIRA 18:2)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut imeni
F.E. Dzerzhinskogo.

USATENKO, Yu.I., doktor khim. nauk; ZAMORSKAYA, T.V. [Zamors'ka, T.V.]

Amperometric titration of mercury, antimony and bismuth with a
solution of thionalide. Khim. prom. [Ukr.] no.3:78-79 31-3 '64.
(RUSS 17:12)

USATENKO, Yu.I.; ZAMORSKAYA, T.V.

Comparing the method of amperometric titration of metals with a
solution of thionalide to other methods. Zav.lab. 30 no.3:
270-272 '64. (MIRA 17:4)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.

USAYBER, ...; LIT. ...; ...

Complex formation of mercury and silver with ethylenediamine
and their potentiometric titration. Ukr. khim. zhur. 1984, 3:
779-783. 164. (CHEM. 17:10)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.

USATENKO, Yu.I.; TOLUBARA, A.I.

Amperometric titration of palladium by thiourea and its derivatives.
Zav. lab. 31 no.1:34-36 '65. (MIRA 19:3)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut imeni
Dzerzhinskogo.

ACCESSION NR: AT5012671

UR/2513/65/015/000/0088/0095

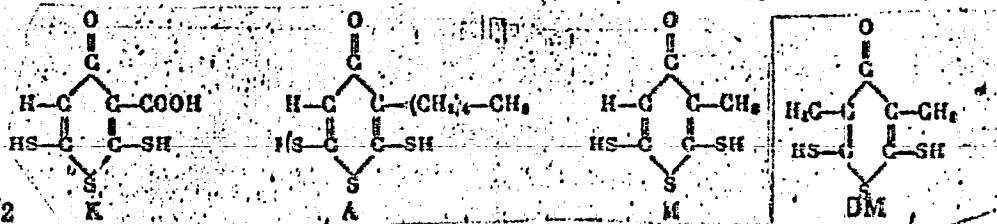
AUTHOR: Usatenko, Yu. I.; Arishkevich, A.M.; Danilevskaya, A.I.

TITLE: Extractive concentration and photometric determination of microquantities of copper by means of dimercaptopyrones

SOURCE: AN SSSR. Komissiya po analiticheskoy khimii. Trudy, v. 16, 1965. Metody kontsentrirvaniya veshchestv v analiticheskoy khimii (Methods of concentrating substances in analytical chemistry), 88-86

TOPIC TAGS: copper extraction, copper determination, dimercaptopyrone, photometric analysis

ABSTRACT: The following four dimercapto derivatives of thiopyrone were synthesized:



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ACCESSION NR: AT5012671

The compounds were used for the extraction and photometric determination of micro-quantities of copper, with which they form colored complexes having an absorption maximum at 496 m μ . Since the intensity of the color depends on the medium, reagent, and valence of copper, the reactions were studied under various conditions. The highest optical density was displayed by univalent copper in HCl at pH 0-1. The best extracting agents are isoamyl alcohol and amyl acetate; the latter was used in the experiments. The extractability of the complexes depends on the acidity of the aqueous solution and the amount of reagent used. On the basis of experiments with pure salts, methods were elaborated for the extractive concentration, reextraction, and photometric determination of microquantities of copper in water and certain chemical reagents; the analytical procedures involved are described. Orig. art. has: 4 figures, 3 tables and 4 formulas.

ASSOCIATION: Komissiya po analiticheskoy khimii, AN SSSR (Commission on Analytical Chemistry, AN SSSR)

SUBMITTED: 00

ENCL: 00

SUE CODE: IC,00

NO REF SOV: 003

OTHER: 000

Card 2/2

L 57738-65 ENT(m)/ENP(t)/ENP(5) IJP(c) JD

ACCESSION NR: AP5017088

UR/0032/65/031/007/0788/0790
546.87:543.432

AUTHOR: Usatenko, Yu. I.; Arishkevich, A. M.; Akimetskin, A. G.

TITLE: Extractive-photometric determination of microamounts of bismuth

SOURCE: Zavodskaya laboratoriya, v. 31, no. 7, 1965, 788-790

TOPIC TAGS: photometric determination, bismuth extraction, colorimetric reaction, dimercaptothiopyrone, 3,5-diphenyl-1,4-thiopyrone-2,6-dithiole, optical density, luminous absorption

ABSTRACT: The authors describe a photometric method they developed for determining microamounts of bismuth. The method is based on the reaction between bismuth and a reagent -- 3,5-diphenyl-1,4-thiopyrone-2,6-dithiole (DF), a derivative of dimercaptothiopyrone. The luminous absorption of compounds of bismuth with DF was examined by means of a SF-4 spectrophotometer and found to be 360 mμ at its maximum. The sensitivity of certain colorimetric reactions to bismuth was compared (in μg per cm² of illuminated surface). To eliminate the effect of Sb, As, Ag, Cu, Pb, Cd, Pd, Hg, Sn, and Fe, bismuth was isolated by extraction in the form of bismuth diethyldithiocarbamate by ethyl acetate from

Card 1/2

L 57738-55

ACCESSION NR: AP5017088

an alkali solution containing tartrates (to prevent hydrolysis), cyanides, and a complexing agent. If the ratio of Cu to Bi is not more than 200 and if palladium, mercury, and silver are absent in the mixture, cyanide need not be used and bismuth can be selectively extracted from ethyl acetate with 5N HCl. In the second part of the experiments optical density was measured by means of a FEK-M-57 photocolormeter with light filter No 1, using water as the reference solution; the bismuth content was found from the calibration curve. The entire analysis takes 1 hr. The assay error is $\pm 5\%$ when the Bi content is from 0.0005 to 0.01%. Sensitivity of the method: 0.07 $\mu\text{g/cc}$. The method was used with positive results to determine the Bi content of tin, chromium, iron ore, copper ore, steel, and ferrochrome. Orig. art. has: 2 figures, 2 tables.

ASSOCIATION: Ural'skiy politekhnicheskii institut im. S. M. Kirova (S. M. Kirov Ural Polytechnic Institute)

SUBMITTED: 00

ENCL: 00

SUB CODE: OP, MM

NO REF SOV: 006

OTHER: 005

Card

dhp
2/2

SUPRUNOVICH, V.I.; USATENKO, Yu.I.

Amperometric determination of molybdenum in steels with
8-mercaptocinnoline. Zav. lab. 31 no.3:262-264 '65.

(METR 18:12)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im.
F.E.Dzerzhinskogo.

SUPRUNOVICH, V.I.; USATENKO, Yu.I.

Amperometric titration of molybdenum with 8-mercaptoquinoline.
Zhur. a. al. khim. 20 no.7:800-806 '65. (MIRA 18:9)

1. Dnepropetrovsk Chemico-Technological Institute.

DANILEVSKAYA, A.I.; ARISHKEVICH, A.M.; USATENKO, Yu.I.

Turbidimetric titration of copper with dimercaptopyrnone.
Zav. lab. 31 no. 12:1439-1441 '65 (MIRA 19:1)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut imeni
Dzerzhinskogo.

USATENKO, Yu.I.; KUTSENKO, L.M.

Reaction of trivalent thallium with potassium ethyl- and
isoamyl xanthate. Zhur. anal. khim. 20 no.5:561-566 '65.
(MIRA 18:12)

1. Dnepropetrovskiy khimiko-tehnologicheskoy institut imeni
F.E. Dzerzhinskogo. Submitted May 7, 1964.

TOIUBARA, A.I.; USATENKO, Yu.I.

Reaction of platinum compounds with 1,4-diphenylthiosemicarbazide.
Ukr. khim. zhur. 31 no.10:1097-1100 '65. (MIRA 19:1)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut imeni
F.E. Dzerzhinskogo. Submitted May 7, 1964.

L 19712-63 EPR/ENT(1)/EPF(c)/EPF(n)-2/ENP(q)/ENT(m)/BDS/T-2/ES(v)/
ES(s)-2/ES(w)-2 AFFTC/ASD/SSD Ps-4/Pr-4/Pu-4/Pe-4/Pab-4/Pt-4 WW/WH

ACCESSION NR: AP3003205

S/0115/63/000/006/0021/0022

AUTHOR: Margulis, O. M.; Usatikov, L. E.; Kamenetskiy, A. B.; Lakh, V. I.;
Stadnyk, B. I.

TITLE: Refractory insulation of thermo-electrodes used in measuring high
temperatures

SOURCE: Izmeritel'naya tekhnika, no. 6, 1963, 21-22

TOPIC TAGS: insulation, refractory insulation, high-temperature
measurements, VR-5 alloy, VR-15 alloy, VR-20 alloy

ABSTRACT: As porcelain caps and beads slipped over thermocouples withstand
only temperatures of up to 1,000-1,500C, other materials -- MgO, Al_2O_3 , and
 ZrO_2 -- were used for developing refractory insulation for high-temperature
thermocouples. Wires from tungsten-rhenium alloys containing 5% (VR-5),
15% (VR-15), and 20% (VR-20) rhenium were annealed at 1,400-1,650C in

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ACCESSION NR: AP3003205

0.001-torr vacuum and in hydrogen. VR-5/20th and VR-15/20th thermocouples⁰ were made from these 0.34-mm wires. The MgO caps and beads were tested separately for five hours in argon at 2,400C; they also worked in induction furnaces at temperatures up to 2,000C without appreciable vaporization or volatilization; however, in 10⁻⁴-torr vacuum at temperatures over 1,600C, a "considerable wear was observed." Orig. art. has: no figure, formula, or table.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneporov
(Ukrainian Scientific-Research Institute of Refractories)

SUBMITTED: 00

DATE ACQ: 22Jul63

ENCL: 00

SUB CODE: IE

NO REF SOV: 001

OTHER: 002

Card 2/2

ACCESSION NR: AP4015329

S/0131/64/000/001/0024/0028

AUTHORS: Margulis, O. M.; Usatkov, I. F.; Kamenetskiy, A. B.

TITLE: Refractory materials for the protection of thermoelectrodes used in high-temperature measurements

SOURCE: Ogneupory*, no. 1, 1964, 24-28

TOPIC TAGS: refractory material, zirconium dioxide, magnesium oxide, thermocouple protective jacket, VR 5/20 thermocouple, OPPIR-09 pyrometer, Tamman electrical oven, TVV-2M oven, high-temperature oven

ABSTRACT: A procedure for the production of thermocouple jackets is described. These jackets made of zirconium dioxide and magnesium oxide were up to 600 mm long and 22 mm in diameter. Despite the differences in their compositions, it has not been possible to determine which material is the more advantageous. The tests were carried out in a Tamman electrical oven, a TVV-2M oven, and in high-temperature ovens. It was established that thermocouple coverings described here should not be used under reducing conditions. Tests carried out at 1×10^{-3} mm Hg pressure under argon in a TVV-2M oven showed that the MgO jackets should not be used for

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ACCESSION NR: AP4015329

measuring temperatures in vacuum. When the thermocouples were placed near the water-cooled parts of the oven, their jackets were destroyed by the abrupt temperature differences. The MgO coverings can be used in taking measurements under argon at 2400C for a period of 5 hours, while the ZrO₂ jackets withstand a temperature of 2400C for several minutes and may be used for extended periods at 1900C in vacuum, under nitrogen and under argon. The long coverings had to be attached to graphite supports to prevent their bending at high temperatures. Orig. art. has: 2 tables and 3 figures.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneporov (Ukrainian Scientific Research Institute of Refractory Materials)

SUBMITTED: 00

DATE ACQ: 10Feb64

ENCL: 00

SUB CODE: ML

NO REF SOV: 003

OTHER: 001

Card 2/2

ACCESSION NR: AP4013186

S/0131/64/000/002/0063/0067

AUTHORS: Margulis, O. M.; Usatkov, I. F.; Kamenetskiy, A. B.

TITLE: Large items of high thermal stability made of zirconium dioxide

SOURCE: Ogneupory*, no. 2, 1964, 63-67

TOPIC TAGS: zirconium dioxide, thermal stability, refractory characteristic, refractory material, refractory shape effect, refractory size effect

ABSTRACT: It was previously established that the thermal stability of refractory materials made of zirconium dioxide increased if certain amounts of isometric and monoclinic ZrO_2 were melted and mixed together. The present work was carried out in order to determine the optimal quantities of the monoclinic part and the optimal grain sizes of both parts. The experiments showed that: 1) thermal stability of large items made of zirconium dioxide increased with the use of 0 to 60 μ fraction of isometric ZrO_2 ; 2) the monoclinic zirconium (introduced in insignificant quantities) gave best results when its grain sizes were smaller than 2 μ but even with 60 μ grains its thermal stability and the deformation temperature under load remained satisfactory; 3) 15% of coarse monoclinic zirconium gave the best results

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ACCESSION NR: AP4013186

(the increase of its content from 15 to 25% lowered the strength of the material at room temperature); 4) thermal stability of large items made of zirconium dioxide was affected by the shape and the size of the item; 5) the introduction of the monoclinic zirconium considerably increased the thermal stability of large items in comparison to those made only of isometric ZrO_2 . Orig. art. has: 4 tables and 1 figure.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneporov (Ukrainian Scientific Research Institute of Refractories)

SUBMITTED: 00

DATE ACQ: 02Mar64

ENCL: 00

SUB CODE: ML

NO REF SOV: 005

OTHER: 000

Card 2/2

L 17829-65 EWG(j)/EWP(o)/EWT(m)/EPF(c)/EPF(n)-2/EPH/T/EMP(t)/EWP(b) Pr-L/
Ps-L/Pu-L IJP(c)/AS(mp)-2/ASD(m)-3 WH/WW/JD/JG
ACCESSION NR: AP4047018 S/0131/64/000/010/0436/0440

AUTHOR: Karaulov, A. G.; Usatkov, I. F.

TITLE: Production of cast products from zirconium dioxide 27 27 0

SOURCE: Ogneupory*, no. 10, 1964, 436-440

TOPIC TAGS: refractory, zirconia refractory, zirconia, casting, cast refractory

ABSTRACT: A study has confirmed that the addition of 10% monoclinic zirconia to zirconia stabilized in the cubic form raises the thermal shock resistance of refractories made from this material. This research was done because of the contradictory data in the literature on the casting properties and thermal shock resistance of such refractories. Thermal shock resistance was determined by subjecting crucible specimens to cycles of heating to 1600C and rapid air-cooling until crucible failure. The expediency of using 10% finely ground nonfired monoclinic zirconia instead of the fired variety was shown; the results were confirmed in the production of a pilot batch of refractories. This amount (10%) of nonfired zirconia had little

Card 1/2

L 17829-65

ACCESSION NR: AP4047013

effect on the structural and mechanical characteristics of suspensions and improved the thermal shock resistance of the refractories; castings retained the same firing shrinkage as with 20% fired zirconia. The use of nonfired zirconia eliminates preliminary compacting of the zirconia, and firing and grinding of the compact. Orig. art. has: 2 tables and 3 figures.

ASSOCIATION: Ukrainskiy Nauchno-issledova-tel'skiy institut
ogneuporov (Ukrainian Scientific Research Institute for Refractories)

SUBMITTED: 00

ENCL: 00

SUB CODE: GC, HT

NO REF SOV: 011

OTHER: 000

Card 2/2

KAYNARSKIY, I.S.; GAODU, A.N.; KARYAKIN, L.I.; USATIKOV, I.P.

Technology of corundum refractories. Ogneupory 30 no.2:37-41 '65.
(MIRA 18:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogenuporov.

KAYNARSKIY, I.S.; GAODJ, A.N.; USATIKOV, I.F.

Semi-lightweight corundum refractory. Ogneupory 30 no.5:38-40 '65.
(MIRA 18:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov.

L 12160-66 EWP(e)/EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b) IJP(c) JD/WH/JG/WH

ACC NR: AP6000758

UR/0131/65/000/012/0042/0045

AUTHOR: Margulis, O.M.; Usatikov, I.F.

ORG: Ukrainian Research Institute for Refractories (Ukrainskiy nauchno-issledovatel'skiy institut ogneporov)

TITLE: Thermocouple coverings made of zirconium dioxide and magnesium oxide

SOURCE: Ogneupory, no. 12, 1965, 42-45

TOPIC TAGS: refractory oxide, zirconium compound, magnesium compound, thermocouple, high temperature material

ABSTRACT: Object of the work was the development of thermocouple coverings which can operate at temperatures of 1900 and 2400°C. The zirconium dioxide used had a content of zirconium dioxide plus hafnium dioxide not less than 96%, and was stabilized with calcium oxide in the form of chalk. To improve thermal stability, the thermocouple coverings were made of a mixture of the cubic (stabilized) and the monoclinic (unstabilized) forms. The best thermal stability was shown by coverings made of mixtures containing 40-50% fused monoclinic zirconium dioxide or 20-30% annealed zirconium dioxide. The coverings were poured into gypsum forms and were dried in the forms to a moisture content of 0.5 to 1.0%. They were then annealed under annealing conditions given in a table. To test the mechanical properties of the coverings, samples were prepared in the

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UDC: 666.76:535.532

L 12160-66

ACC NR: AP6000758

form of cubes with an edge length of 300 mm and prisms 140 mm long with a cross section of 15 x 8 mm and were annealed with the coverings. The article gives tables with the results of tests on volumetric weight, porosity, compression yield point at 1650°C, and bending strength at 1400°C. Analogous tests were made on coverings made of magnesium oxide. In this case, the test samples contained 96.7% magnesium oxide and 2.5% calcium oxide. Orig. art. has: 1 figure and 3 tables.

SUB CODE: 07,11/ SUBM DATE: 00/ ORIG REF: 008/ OTH REF: 000

HW
Card

2/2

USATIN, P.B.

Criteria of mechanical properties of bearings for measuring
instruments; quality factor. Trudy IO NTO Priberprom. no.3:
5-18 '56. (MLRA 10:8)

(Electric meters)

USATIN, P.B.

Minature a.c. electric meters. Biul.tekh.-ekon.inform. no.1:
40-43 '60. (MIRA 13:5)
(Electric meters)

USATIN, P.B.

Electric meters for networks with infra-low frequency currents.
Biul.tekh.-ekon.inform. no.2:35-38 '60. (MIRA 13:6)
(Electric meters)

9(6) 9.6000

AUTHORS: Ornatskiy, P. P., Candidate of
Technical Sciences, Usatin, P. B. Engineer

3/125/60/000/03/004/017
E014/B007

TITLE: Measurement of Electrical Quantities at Infralow Frequencies

PERIODICAL: Priborostroyeniye, 1960, Nr 3, pp 7-10 (USSR)

ABSTRACT: In the introduction, the authors mention several fields in which electrical quantities with very low frequencies must be measured. In the present paper methods for the decrease and complete compensation of the instrument hand due to the hysteresis occurring fluctuations are discussed. The authors first deal with the reduction of these fluctuations by increasing the mechanical inertia or the damping of the instrument. In this they proceed from the equation of motion of the moved parts of the system, and they show that the lower limiting frequency is considerably below 10 cps. In the case of heat-, bimetal-, and thermoelectrical instruments, heat inertia may also be used for the purpose of reducing the fluctuations. Experiments, which were carried out with thermoelectric instruments at the Laboratoriya kafedry izmeritel'nykh ustroystv Kiyevskogo politekhnicheskogo instituta (Laboratory of the Chair for Measuring Instruments of the Kiyev Polytechnic Institute) gave satisfactory

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Measurement of Electrical Quantities at Infrared Frequencies 1/11/60/000/03/004/017
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results. The use of rectifiers and electric and electromechanical filters also yielded good results. The collaborators of the above mentioned laboratory, V. I. Chervyakova and P. B. Usatin, developed instruments, using voltmeters and ammeters of the types Ts130, which permit measuring the low-frequency alternating quantities by rectification and filtering. Here a suggestion made by Professor R. R. Kharchenko (Ref 3) was used. It is further possible to reduce indicator fluctuations by compensation of the alternating component of the torque acting upon the indicator. This is done by using a double-measurement-instrument (Fig 5), the coils of which are connected within the circuit in such a manner that the fluctuations compensate one another. Finally, frequency measurement in this low-frequency region is dealt with. In the frequency meter for the range of from 0 - 2 cps, which is shown in figures 8 and 9, the rectified low-frequency alternating voltage charges a condenser the discharge current of which is measured by means of a milliammeter. There are 2 figures and 3 Soviet references.

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USATIN, P.B.

The D129 voltwattammeter for three-phase current. Biul.tekh.-
ekon.inform. no.8:29-30 '60. (MIRA 13:9)
(Electric meters)

USATIN, P.B.; LONINOV, G.D.

Over-all size and connection dimensions for bodies of electric
measuring instruments. Standartizatsia 24 no.2:16-19 P
'60. (MIRA 13:5)
(Electric instruments)

USATIN, P. B.

"Measuring of reactive power and power factor of electric circuits with non-sinusoidal current and voltage"

Paper presented at the Second International Measurements and Instruments Conference, (IMEKO), Budapest, 25 June - 1 July 1961.

USATIN, P.B.

Designing braces for movable parts of electric measuring instruments.
Izm.tekh. no.2:32-35 F '61. (MIRA 14:2)
(Electric instruments)

USATIN, P.B.

Measuring reactive power and the power factor in case of a non-sinusoidal current and voltage. Izv.tekh. no.6:38-41 Je '61.
(MIRA 14:5)

(Electric measurements)

KAPLYANSKIY, A.Ye., doktor tekhn.nauk, prof. (Leningrad);-USATIN, P.B.,
inzh. (Leningrad); BRENNER, G.L., inzh. (Leningrad)

Portable multirange meter for measuring voltage, amperes, ohms,
watts, and vars. Elektrichestvo no.5:84-87 My '62. (MIRA 15:5)
(Electric meters)

USATIN, P.B.

Measurement of reaction power in circuits with nonsinusoidal
current and voltage. Nov. nauch.-issl. rab. po metr. VNIIM
no.6:21-24 '64. (MIRA 18:3)

USATIUK, M. K.

Marinovanie plodov i ovoshchei (Pickling of fruit and vegetables). Pod red. A. Vasil'eva. Moskva, Gostorgizdat, 1953. 34 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 6, Sep. 1954

USATIY, A. F. and LAZURKIN, Yu. S.

"Observation of Radicals in Proteins During Irradiation Using the ESR Method. Kinetic Laws."

paper presented at the Symposium on Biological Effects of Ionizing Radiation at the Molecular Level (IAEA), 2-6 July 1962, Brno, Czech.

24 (4), 21 (8)

AUTHORS:

Vasil'yev, G. Ya., Usat'y, A. F.,
Lazurkin, Yu. S., Markov, A. A.

SOV/20-125-5-11/61

TITLE:

Measurement of the Luminescence and Darkening of Glass During
the Process of Their Irradiation in a Nuclear Reactor
(Izmereniye lyuminestsentsii i potemneniya stekol v protsesse
ikh oblucheniya v yadernom reaktore)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6,
pp 1219-1222 (USSR)

ABSTRACT:

The present paper is intended to work out the construction of a
device for the simultaneous measurement of the luminescence
and darkening of transparent materials in a nuclear reactor
and to deal with the carrying out of experiments by means of
this apparatus. The usefulness of parallel measurements of
the yield of the luminescence and of the darkening of the
sample may be seen from the close connection between these
phenomena during irradiation. The device consists of an
aluminum tube of 5 m length and 60 mm diameter, inside of
which two tubes of the darkening tract (polished inside) and
one polished tube of the luminescence tract were fitted.

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Further details of the apparatus are described. Luminescence

Measurement of the Luminescence and Darkening of Glass During the Process of Their Irradiation in a Nuclear Reactor SOV/20-125-6-11/61

and darkening were measured in the perpendicular, dry, channel of 65 mm (with external water-cooling) of the experimental reactor VVR. In this reactor ordinary water is used as moderator and coolant. The channel was near the active zone of the reactor. By variation of the power of the reactor various values are obtained for the differential dose. In the case of all experiments temperature remained below 35°. The samples consisted of 10 mm thick disks with a diameter of 20 mm. The following quantities were measured by remote control: a) the brightness of luminescence and its time dependence at various differential doses. b) The darkening of the samples and their time dependence at various differential doses. c) Measurement of darkening after irradiation was stopped. Measurements were carried out on various types of quartz, pyrex glass, cerium glass, polymethylmethacrylate, and polystyrene. In the case of all quartz samples, the relation $B = \beta P$ holds up to a differential dose of $P = 2000$ rad/sec, where β denotes the specific brightness coefficient of luminescence. In the case of polymethylmethacrylate and polystyrene the brightness of luminescence increases with progressing

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Measurement of the Luminescence and Darkening of SOV/20-125-6-11/61
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time and increasing integral dose. The optical density D for some dozens of minutes remains on the equilibrium level, the amount of which depends on the differential dose, and changes only little with an increase of the integral dose. The measurements carried out in the course of this investigation are only the first part of a series of measurements which is planned. There are 3 figures and 2 Soviet references.

PRESENTED: January 8, 1959, by A. P. Aleksandrov, Academician

SUBMITTED: September 23, 1958

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USATKO, Yu.I.; FEDASH, N.P.

Manganese diethyldithiocarbamate in nonaqueous solvents. Trudy
Khim. anal. 14:183-190 '63. (MIRA 16:11)

SERGEYEV, V.D., inzh.; USATOV, A.G., inzh.

KDE-151 railroad crane. Stroi.i dor.mash. 6 no.8:13-14 Ag '61.
(MIRA 14:8)

(Cranes, derricks, etc.)